

From: <bharve@dwp.ci.la.ca.us>
To: <Blaine-l@ipsc.com>
Date: Wednesday, January 31, 2001 5:27:28 PM
Subject: prelim NOI

Some thoughts about the preliminary NOI:

Prepare one NOI, or two?

By content of the draft, it appears that as it was being developed you and Rand were thinking in two ways. 1. The NOI will be for the dense pack case only, with firing at either the current rate or a lower rate. 2. The NOI will be for the full bore case of making all modifications and firing at a higher rate. Examples of these distinct thoughts are in the emission parameters table. An example of the first is the 'none' entry for increase in stack gas volume with modifications. An example of the second is the '0.46 lbs/mmmbtu' entry in the table for increase in NOx with modifications. If a dual-purpose NOI is to be submitted, it seems to me that the table needs a distinct column for the dense pack only case, and another distinct column for the all mods and higher firing case. A four-column table would require a smaller font in the table, unless the 'Before PCD' column can be eliminated. (I don't know whether that column has to be included in response the requirements of UAC R307-401-2.)

There are also several examples in text that indicate the two distinct lines of thought. You and Rand may intend to separate out the two cases into two separate NOI documents. Alternately, you and he may intend a single NOI to detail both cases, and intend to ask DAQ in discussions to issue an order for the full modifications case, or if not that, an order for the dense pack only case. I don't know if DAQ will prefer (or require) requests for two differing orders to be stated in two different NOIs. I'm sure you guys do, though.

Organization of NOI to distinguish types of modifications

In an NOI for the full set of modifications (or the NOI, if only one NOI is to serve all purposes), it might be well to use organization, including section headings, to separate intended modifications which would be solely for reliability from those which have possibility to affect emissions. I don't know if DAQ has any interest in modifications which will affect only reliability; I imagine they don't. However, they surely have interest in any modification until they can assure themselves that it won't affect emissions. With the intent to make reliability modifications during the outages along with modifications which will affect emissions, it's good to include both in the NOI. Kudos to you guys.

Nitpicks on word usage

1. In the draft, the words 'intended', 'planned', and 'proposed' are used, seemingly with the same meaning. A suggestion would be to use only one term, preferably 'intended', since that's part of the document title. A similar nitpick: use of 'modifications' and 'changes' with a single meaning.
2. In the draft, 'de-bottleneck' is used to characterize modifications which will increase capacity of individual equipment or equipment strings. A suggestion would be to term them as capacity increases. (I note however that 'de-bottleneck' has been used, albeit with quote marks, by none other than the Deseret News in a recent article Gale faxed to Mike. Use of quote marks by the Deseret News writer (or editor) however show recognition that it is something

of a colloquialism.)

3. In the table, 'Before', 'After', and 'with modifications' in the column titles can be confusing. I initially puzzled over how 'After' and 'with modifications' could be distinct? That puzzlement was however partly due to having noted that parts of two distinct cases are stated in boxes of the 'with modifications' column, as discussed above. Maybe you guys can craft other column titles, such as 'currently upstream from PCD', 'currently downstream from PCD', and 'Increase Downstream from PCD, with modifications' or something similar. (Then again, for all I know, the phrases you've used in the column titles are per UAC R307-401-2.)

You guys know the DAQ folks better than I do. Ignore my nitpicks accordingly.

For your leisure reading:

I wasn't smart enough to come to the suggestions above without hacking on the prelim. As long as I did that, I figured I may as well send it. (Attached as a Word document. Converters available in my Word program convert only to Word Perfect 5.1 as the latest. Better to let you convert it if you want some 'leisure' reading.) I don't suggest you show it to Rand. Pride of authorship is worth something. Actually, quite a bit.

(See attached file: DensePakEtcNoi.doc)

Regards, Bruce

January ##, 2001

Mr. Richard Sprott
Director
Division of Air Quality
Department of Environmental Quality
P.O. Box 144820
Salt Lake City, UT 84114-4820

Dear Mr Sprott,

NOTICE OF INTENT: Modification of Source

Intermountain Power Service Corporation (IPSC) is hereby submitting a Notice of Intent to construct equipment modifications at the Intermountain Generating Station (IGS). The IGS is a coal fired steam-electric plant located near Delta in Millard County. The primary intended modification will enable an increase in electric production with no increase in emissions. Secondary intended modifications will enable yet further increase in electric production, with increased emissions. Other intended modifications will increase reliability; without any effect on emissions. This NOI requests an approval order to construct and Title V changes to operate with the modified equipment.

As required by Utah Administrative Code R307-401-2, the following information is provided:

- (1) **PROCESS DESCRIPTION:** IGS is a fossil-fuel fired steam-electric generating station that uses coal as the primary fuel for the production of steam to generate electricity. Both bituminous and subbituminous coals are utilized. Fuel oil is used oil for startup and a minor amount of drain oil which could otherwise be recycled is burned for energy utilization.

IGS is a two unit facility operating at a rated capacity of 875 megawatts (MW) per unit (gross). Approximately 5.3 million tons of coal and 600,000 gallons of oil are used each year in the production of electricity. Boiler capacity is rated at 6.2 million pounds per hour of steam flow at 2822 psi. Pollution control devices (PCD) include low-NOx burners, fabric filters, and wet limestone scrubbers.

IGS has in place bulk handling equipment for the unloading, transfer, storage, preparation, and delivery of solid and liquid fuel for the boilers. No modifications to this equipment are intended or expected to be required. Similarly, no modifications to handling equipment for other bulk materials is intended or expected to be required.

- (2) **INTENDED MODIFICATIONS**

The primary intended modification is replacement of the Unit One and Unit Two high-pressure turbine blading, to increase efficiency. The increase in efficiency will

allow present electric production capacity to be attained at a lower firing rate and therefore with lower emissions. The increase in efficiency will also allow higher electric production to be attained at the current firing rate and with no increase over current emissions. Secondary modifications are also intended which will increase cooling capacity of certain plant equipment. If both primary and secondary modifications are made, still higher electric production will be possible, albeit at a higher firing rate and with increased emissions. It is intended to make both the primary and secondary modifications. It is also intended that during the Unit outage periods other equipment modifications will be made to increase reliability. The modifications to increase reliability will have no effect on either capacity or emissions. The intended modifications are detailed in this document and attachments

(a) Modifications to increase capacity include:

Increase generator winding cooling equipment capacity;

Increase cooling tower capacity

Increase main step-up transformer cooling equipment capacity

(b) Modifications to improve reliability include:

Add steam pressure safety valves to both main steam and cold reheat steam lines;

Reconnect loads for equalization of auxiliary bus loadings;

Modifying induced draft fan ducts;

Add performance upgrades to boiler feed pumps;

Improve boiler and turbine control system logic software;

Modify gas flow in desulfurization scrubbers (this will also reduce emissions for any operating mode).

Capitalization of all intended changes to both units is expected to be about \$26 million.

With all intended modifications made, generation capacity will increase from 875 to 930 MWe, and design steam flow will increase from 6.2 to 6.9 million pounds per hour. Design heat input will increase from 8.352 to 9.225 billion BTU per hour, requiring the use of 5.6 million tons of coal each year. See technical specifications for details.

(3) EMISSION CHARACTERISTICS:

The following table shows current values of emission parameters, both before (upstream) of pollution control devices (PCD) and after (downstream) from PCD. The table also shows the expected changes in emission parameter values following all intended modifications. ~~The mass flow of chimney effluent may change proportionately with the fuel usage and combustion air to meet comparable heat input.~~ [BH questions and notes: Is the lined-through sentence for the case of dense pack only, and units operated at present heat input values? That sentence taken together with the header wording and parameter values in the far right column of the table leave me wondering what case (or cases) is (are) being written about. No change for stack gas volume and everything below it in the table seems to be for the case of operating at current heat input rate.. However, the table shows an increase of 0.46 lbs./mmbtu expected for NOx. Is 0.46 the expected increase with all mods, and no NOx control? Alternately, is 0.04 the intended table entry, for increase, and is that the expected increase when operating at an increased input with only the dense pack mod? Are the sentence and the right hand column about a mix of cases? If that is intended, clarification seems needed. If multiple cases are to be addressed, the table probably needs another column, or more.]

The following emission rate parameters are provided as required:

Parameter	Currently Upstream from PCD	Currently Downstream from PCD	Increase Downstream from PCD, with modifications
Particulates	96,000 lbs/hr	50 lbs/hr	none
Nitrogen Oxides	0.42 lbs/mmBtu*	0.42 lbs/mmBtu	0.46 lbs/mmbtu
Sulfur Dioxide	1.8 lbs/mmBtu	0.06 lbs/mmBtu	none
Temperature	325 F	120 F	none
Stack Gas Volume	130,000,000 scfh	130,000,000 scfh	none
Hydrochloric Acid	0.67 lbs/ton	0.02 lbs/ton	none
Hydrofluoric Acid	0.14 lbs/ton	0.004 lbs/ton	none
Antimony	0.007 lbs/ton	0.000008 lbs/ton	none
Arsenic	0.03 lbs/ton	0.00006 lbs/ton	none

Beryllium	0.0009 lbs/ton	0.0000005 lbs/ton	none
Cadmium	0.001 lbs/ton	0.00001 lbs/ton	none
Chromium	0.06 lbs/ton	0.0001 lbs/ton	none
Cobalt	0.006 lbs/ton	0.00001 lbs/ton	none
Lead	0.013 lbs/ton	0.00003 lbs/ton	none
Manganese	0.016 lbs/ton	0.00005 lbs/ton	none
Mercury	0.0001 lbs/ton	0.00001 lbs/ton	none
Nickel	0.009 lbs/ton	0.00005 lbs/ton	none
Selenium	0.005 lbs/ton	0.00065 lbs/ton	none

***NOTE: NOx emissions are estimated AFTER lowNOx combustion.**

[BH note and questions: The use of the word AFTER in the table note, together with the use of the word Before in the column with the asterisk leaves me confused. Does the asterisk belong in the After PCD column, and should the note indicate that NOx after PCD is estimated, not measured? Alternately, is the note communicating that, after installation of lowNOx burners some time ago, NOx has only been estimated? If so, an asterisk should be in both columns.]

- (3) **PCD DESCRIPTION:** Present pollution control device equipment for combustion includes dual register low NOx burners, baghouse type fabric filters for particulate removal, and wet limestone flue gas desulfurization scrubbers. The low NOx burners provide a nominal 60% reduction in potential combustion NOx concentration, the baghouse filters operate at nominal 99.95% efficiency, and the wet scrubbers operate at nominal 90% efficiency. Control equipment for the handling of solid materials includes dust collection filters. *[Name other equipment, or delete 'includes', and use 'is' instead.]* No changes in the operation of the fabric filters or wet limestone scrubbers are required nor expected. However, modifications to flue gas flow through scrubber modules will enhance removal rates.
- (4) **EMISSION POINT:** The present emission point for the IGS boilers is a lined chimney that discharges at 712 feet above ground level (5386 feet above sea level). The chimney location is 39° 39' 39" longitude, 112° 34' 46" latitude.
- (5) **SAMPLING/MONITORING:** Emissions from boiler combustion are continuously sampled and recorded at the chimney for nitrogen oxides, sulfur oxides, carbon dioxide, and volumetric flow. Opacity is continuously measured and recorded at the fabric filter outlet. Other parameters continuously recorded include heat input and production level (megawatt load). Monitoring will remain unchanged. Other emissions not directly monitored are calculated using

engineering judgements, emission factors, and fuel analyses.

- (6) **OPERATING SCHEDULE:** Operation at IGS is 24 hours per day, seven days per week. This will not change.
- (7) **CONSTRUCTION SCHEDULE:** Construction of these modifications will be performed in a staged manner, generally following this schedule:

Spring 2002: Unit Two HP Dense Pack installation (no net significant increases).

Spring 2003: Unit One HP Dense Pack installation (no net significant increases).

Spring 2004:

Spring 2005:

Spring 2006:

Approval of this NOI is requested as soon as possible.

- (8) **MODIFICATION SPECIFICATIONS:** Detailed engineering specifications and project descriptions will be forwarded under separate cover.
- (9) **ADDITIONAL INFORMATION:** IGS operates under a Title V permit (#2700010001). IPSC intends to continue to operate in full compliance with that permit and applicable requirements. No deviations from permit conditions are expected. *[As wrtitten, this paragraph is for the case of dense pack only, and operation at current firing rate.(?) Revision needed if NOI is to embrace other cases.]*

IPSC reserves the right to cancel any and all intended modifications prior to the issuance of an approval order. IPSC may scale construction back to installation of turbine dense packs only. We believe that the installation of the HP Dense Pack project alone would not require a PSD new source review. Note that the EPA has previously determined that enhancements like the Dense Pack project are not major modifications. (See detailed analysis and determination provided by Region 5 specific to a dense pack project, from Francis X. Lyons, Regional Administrator, to Henry Nickel of Hunton & Williams, dated 5/23/00.) If IPSC decides to install only the Dense Pack enhancements and certain upgrades for reliability, we will provide the supporting information to show that there would be no significant net increase in emissions. *[From wording of this paragrap, Rand obviously is/was thinking of handling multiple cases with this NOI. (?)]*

Applicability Determinations

New Source Performance Standards. IGS operates as a New Source Performance Standard (NSPS) power plant, regulated under Title 40 of the Code of Federal Regulations, Part 60, Subpart Da. A regulatory review of 40 CFR 60(Da) finds that the proposed changes do not fall under NSPS applicability as a modification. *[I may be misreading here, but the meaning of 'regulatory review' seems to be the definition and EPA interpretation discussed further on in the paragraph. If that is the case, I suggest some sort of revision to wording of the sentence to make that clear. Otherwise, it isn't certain what regulatory body's review is being referred to.]* A modification is defined at 40 CFR 60.14, which covers 40CFR60(Da), to include any change in operation of a source that increases the maximum hourly emissions of a Part 60 regulated pollutant above the maximum achievable during the previous five years. (See 40 CFR 60.14(h): "No physical change, or change in the method of operation, at an existing electric utility steam generating unit shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at that unit during the 5 years prior to the change."). Based upon EPA interpretation and guidance, the "maximum hourly emissions achievable" at IGS are considered to be those emission limits presently in place via our Title V permit. The present NSPS limit for NOx is 0.50 lbs/Mbtu of heat input. At a rated capacity of 8.352 billion BTU per hour, this translates to a maximum achievable emission rate of 4176 pounds per hour. Since we have not, and will not exceed this limit, the maximum hourly emissions achievable can not increase. *Therefore*, NSPS does not apply to the changes proposed here.

Prevention of Significant Deterioration. It is possible that the proposed changes will result in net significant increase for nitrogen oxides (NOx) only. *[This statement applies to the case of making all modifications and firing at a higher rate. Again, Rand appears to have intended the NOI to cover all cases. (?)]* JPSC is requesting that an approval order be issued for construction of this project as a synthetic minor. *[I don't know what synthetic minor means. Is Rand here asking that the NOI be for the case of dense pack only and current firing rate? I'm confused, since the sentence is in the same paragraph as net increase in NOx.]* JPSC can meet with your office staff to provide the calculations and operating data to determine an appropriate permit limit reduction for NOx.

Should you require further information to expedite the approval of this request, please contact Mr. Dennis Killian, Superintendent of Technical Services, at (435) 864-4414, or dennis-k@ipsc.com.

In as much as this notice of intent affects our Title V Operating Permit, I hereby certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Cordially,

S. Gale Chapman
President, Chief Operations Officer, and Title V Responsible Official

cc: Blaine Ipson
Bruce Moore, LADWP CES
Mike Nosanov, LADWP

From: Rand Crafts
To: Dennis Killian
Date: Monday, January 22, 2001 11:22:53 AM
Subject: HP Dense Pack Project - Environmental Summary

Dennis,

Per your request, here's an overview of environmental issues on the HP Dense Pack project:

The project is a capacity enhancement that will directly impact emissions, so at a minimum, we need to obtain a minor modification permit. If we have to obtain a major mod permit, it is virtually guaranteed that BACT will be implemented, along with ambient air monitoring for a year and air modeling (BIG bucks, especially since the State DEQ & EPA will likely dictate SCR's).

In order to keep the upgrades permitted as a minor modification, we must keep net emissions increases below 40 tons/yr for NOx and SO2. NOx will be the trigger here. Utilizing full capacity of the proposed project will result in about a 1200 ton/yr increase in NOx per unit.

To keep minor mod status, we need to either accept a permit limit (synthetic minor), or add a pollution control project. I think a synthetic minor permit could be worked out with a 0.47 lb/Mbtu limit on NOx until 2008, where it would probably change to 0.43 lb/Mbtu. The State and EPA will make final determination what the limits will be.

Alternatively, we could provide some NOx controls just sufficient enough to prevent any increase in NOx emissions. This would be necessary if we can't live under a permit limit required by the State DEQ. This could include enhanced LNB's (marginal) or some other control short of SCR's. Note that we're only talking about controlling a small amount here compared to total NOx emissions. There must be something of marginal cost that would work for us.

For your information, LADWP's Corporate Environmental Service (CES) has just informed me that they will be taking the lead on this project (environmentally speaking) and have retained the services of a consultant to assist them. Parsons Engineering Sciences has an office in Salt Lake, and will be working with us under the direction of CES.

CC: Aaron Nissen; Blaine Ipson; Gale Chapman; James Nelson; Jerry Hintze